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2008 SRM UNIVERSITY

B.TECH II SEMESTER DEGREE EXAMINATIONS

ELECTRICAL MACHINES-II

(ELECTRICAL AND ELECTRONICS ENGINEERING)

DECE 2006

TIME:3 HOUR
MARK:100

ANSWER ALL QUESTIONS

PART-A(10*2=20 MARKS)

1.Write the condition for T max under running condition .

2.Define Cogging of induction motor .

3.Draw the power stages of induction motor.

4.Name some methods of starting squirrel cage induction motor.

5.Why single phase induction motor is not self –starting?

6.Define voltage regulation of alternator.

7.What are the conditions for parallel operation in alternators?

8.Define :Synchronous condensers.

9.What are the characteristic features of synchronous motor?

10.What are the Damper windings and why it is used?

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PART-B(5*16 = 80MARKS)

11.a.i.Draw and explain the torque-slip characteristic of induction motor for different values of rotor Resistance.

ii.A 4-pole, 3 phase induction motor operates from a supply whose frequency is 50Hz.calculate

(i)Synchronous speed(Ns)

(ii)Speed at which the maximum torque occurs.

(OR)

b.i. A 100 Kw ,3300V,50Hz 3-phase,star connected induction motor has a synchronous speed of 500 rpm .The full load slip is 1.8% and full load poweer factor is 0.85.stator copper loss =3500w, rotational loss =1200w.calculate.

(i)Rotor copper loss.

(ii)Line current.

(iii)Full load efficiency.

12.a.Explain with neat diagram various methods of starting of 3-phase squirrel cage induction motor.

(OR)

b.Explain with neat diagram the construction and working principle of synchronous induction motor.

13.a.Explain with relevant sketches the double field revolving theorey of single phase induction motor.

(OR)

b.Explain the construction and working of reluctance motor and hysteresis motor.

14.a.A 100KVA ,3000V,50Hz,3-phase ,star connected alternator has effective armature resistance of
0.2?.the field current of 40A produces a short circuit current of 200A and an open circuit emf of 1040V .Calculate the full load voltage regulation at 0.8 power factor lagging and leading using emf Method.

(OR)

b.What is meant by synchronization?what are the conditions for synchronization and explain with a neat diagram synchronization of three phase alternators.

15.a.Explain the construction and working principles of synchronous motor.

(OR)

b.Draw and explain V and inverted-w V curves of synchronous motor.